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Several New Aberrant Lepidoptera (Rhopalocera).

By J. D. Gunder, Pasadena, California.

(Plate V.)

The time is rapidly approaching when American collectors should take more interest in aberrant Lepidoptera. For the present, we are "busy working over varieties, revising lists, and generally slighting aberrations," as one entomologist recently indicated; but he adds, "the territories of the United States will eventually become limited leaving only forms and aberrations as a source of study"; which is true, for this is the condition now found in England and Continental Europe.

Tucked away in the larger private and museum collections over the country are wonderful and valid, single and duplicate specimens of aberrant rhopalocera which should be gotten out and described, and what is more important—ILLUSTRATED, so that our coming students and patient check-list makers will have definite figures to go by in establishing limitations, degrees of variation and possible causes. Colored plates are not really necessary, as clear black and white half-tones serve the purpose just as well; but, by all means, figure new specimens,

because everyone translates descriptions differently and "types" or their reproductions are still the best and last Court of Appeal. When the species already has a named aberration, be sure that the lines of demarcation in new ones are sufficiently out of range. One should follow precedent in this regard and a study of the existing characteristic variants in the particular genus is necessary. Van. cardui, Ag. antiopa and our Western Euph. chalcedona make a good basis for study and establish adequate boundaries of description. To date, eight standard aberrations of the last named are figured in J. A. Comstock's "California Butterflies."

I have always considered the so-called uncommon or rarely occurring "color forms," as aberrations and therefore describe them under that term. For example, the yellow Euphydryas figured in this paper. Eventually thru the decades, if these become prevalent, they would be moved up a step in rank to the grade of form. Thus under change by evolution (climate, food-plant, etc.) or chance reversional tendency, many aberrations possibly become forms, forms become varieties or races, and races perhaps full species. When more kinds or types of aberrations are found and become known by legitimate and unslighting descriptions, they will be divided into grades and the grades into degrees. This work will be just as important to the student of the future, as is now our proper division of a species.

All figures on this plate have been reduced in size. The colors are fair reproductions.

1. Heodes heteronia Bdv. (fig. 1a), ab. ♂ coloradensis nov. aberr. (fig. 1).

Upper side. Normal.

Under side. (fig. 1) Primaries: The two submarginal rows of black spots joined in pairs in black thru their respective interspaces. Secondaries: Inner row of black spotting heavier and elongated thru interspaces; otherwise normal. Expanse: 38 mm.

Data: Holotype &, (Author's Coll.), Plain View, Colorado. July, 1924.

2. Plebeius monticola Clem. (fig. 2a), ab. ♀ malcolmi nov. aberr. (fig. 2).

Upper side. Primaries: Normal except for a submarginal, narrow border of orange parallel with outer margin, wider at inner angle and indistinct at apex, somewhat similar and comparable to that found on *P. neurona*. Secondaries: Orange band very wide and bright, occupying nearly one-third of outer wing; spotting normal.

Under side. Primaries: Trace of orange between outer margin and first row of black spots. Secondaries: Orange area equally enlarged as on upper side. Expanse: 29 mm.

Data: Holotype 9, (Author's Coll.), Ridge Route, Los Angeles County, California, May 30, 1922.

Named for Mr. Geo. Malcolm, Los Angeles, California.

Note: Figure 2a is Clemence's "type female," first time illustrated. P. acmon is found on the plains and lower hills. P. monticola only in the mountains. An intergrade had been noted found flying with P. chlorina and P. neurona and named form carolynae. As yet no intergrade has been found between P. monticola and P. neurona. If this specimen was a form between these two, it is doubtful if the orange band would be so wide on the secondaries, hence it may be safely termed an aberration.

3. Atrytonopsis edwardsi B. & Mc.D. (fig. 3a, under side), ab. o polingi nov. aberr. (fig. 3, under side).

The primaries are normal. The secondaries are immaculate with entire lack of spotting on either upper or under side. Expanse: 40 mm.

Data: Holotype &, (Author's Coll.) Baboquivari Mountains, Pima County, Arizona, July 22, 1924.

Named for Mr. O. C. Poling.

Note: Normal specimens generally have two rows of spots on the secondaries, occasionally some have only several or an indication, rarely are they immaculate.

4. Euphydryas chalcedona Dbly. & Hew., ab. \(\text{ommiluteofuscus nov. aberr. (fig. 4, under side).} \)

All the red shades of both upper and under sides replaced by yellow-brown color; the maculation is normal. Expanse: 47 mm.

Data: Holotype ⁹, (Author's Coll.), Santa Monica, Los Angeles County, California, May 30, 1924.

Note: Peculiarity of changed color very similar to ab. fo.ri of Euph, rubicunda and ab. pasadenae of Euph, gabbi. Euph, chalcedona is one of the very commonest fliers in California, yet this color aberration is extremely rare in collections as yet.

5. Euphydryas chalcedona Dbly. & Hew., ab. & hemiluteo-fuscus nov. aberr. (fig. 5, under side).

Primaries: Normal red color as in typical specimens.

Secondaries: Normal red color replaced by yellow-brown, as in ab. *omniluteofuscus*, described above. Expanse: 45 mm.

Data: Holotype &, (Author's Coll.), Altruas, Modoc County, California, May 30, 1924.

Note: Comparably worthy of recognition with ab. supranigella and ab. fusisceunda in the chalcedona group.

6. Rhabdoides cellus Bdv. & Lec. (half-fig. 6a), ab. & aereofuscus nov. aberr. (fig. 6).

Normal specimens of *cellus* and *pseudocellus* are black or near black. The black on this specimen, including the antennae and body parts, is replaced by bronze-brown. The band of gold across the primaries, costal margin white marks and fringes remain normal. Expanse: 46 mm.

Data: Holotype & (Author's Coll.), Baboquivari Mountains, Pima County, Arizona, July 15, 1924.

Note: I would be glad to hear from collectors of Eastern Hesperiidae regarding Mexican cellus, to find out if this is a drift north or not. This specimen is fresh and not faded. The types of pseudocellus are in my collection. They are of the same dark color as cellus. The bronze color of this specimen does not show up as well as it might on the plate.

7. Euphydryas anicia Dbldy. & Hew., var. capella Barnes (half-fig. 7a), ab. & oslari nov. aberr. (Fig. 7).

Upper side. Normal specimens of capella are in three colors—black, red and yellow. In this aberration, there are only two—black and red. A study of its remarkable character reveals the fact that the black has taken over the entire spaces usually devoted to yellow, and at the same time kept its own original maculation. This is especially noticeable around the red cell

spots and the former position of the rows of yellow spots on the secondaries.

Under side. As above, all yellow maculation becomes black instead, with original black and red in unchanged position. Expanse: 42 mm.

Data: Holotype &, (Author's Coll.), Platte Canyon, Colorado, July, 1924.

Named for Mr. E. J. Oslar, Denver, Colorado.

8. Euphydryas sierra Wright (half-fig. 8a), ab. & magdelenae nov. aberr. (fig. 8).

Upper side. Primaries: Row of much elongated red spots in interspaces at outer margin, caused by lack of first submarginal black line found in normal specimens; followed by usual row of yellow spots and crescents in black; yellow and red maculation of discal and basal areas conspicuous for not being bounded with black lines; black veining more noticeable due to lack of transverse black marks. Secondaries: Series of elongated red spots at outer margin as in primaries; however, the elongation extends inward and includes the position occupied by the row of yellow spots which are absent; followed by a complete, well defined row of round red spots partially rimmed in black; interspaces of discal area from costal to inner margins wholly yellow only cut by black of veining and two dashes of red at extremity of cell; normal black area in base.

Under side. Similar degree of change, as above noted, especially near base of secondaries. Expanse: 45 mm.

Data: Holotype &, (Author's Coll.), Glen Alpine Creek, El Dorado County, California, May 10, 1921.

Named for Mrs. J. E. Cottle of San Francisco, California, whose ready welcome and kind encouragement are always appreciated by her many West Coast entomological friends.

Note: Ab. umbrobasana, as its name indicates, is a more melanic aberration of sierra, and several degrees opposite to magdelenae. The Author has a splendid specimen of umbrobasana. Euph. sierra and Euph. chalcedona olancha are the best two Euphydryas that Mr. Wright turned up in California.

9. Pieris napi L. var. castoria Reak. (half-fig. 9a), ab. & cottlei nov. aberr. (fig. 9).

Single small black spot on primaries greatly enlarged, filling

interspace and bullet-shaped, pointing inward; trace of suffused spotting in two interspaces directly below, shading out and all connected, making the whole appear like a large "comma mark" on the wing of the specimen. A faint spot is noticeable at costal margin near outer angle on the secondaries. Both sexes of castoria in its various spring and summer broods are before the Author. Expanse: 48 mm.

Data: Holotype &, (Author's Coll.), Anderson Springs, Lake County, California, May 5, 1919.

Named for Mr. J. E. Cottle, San Francisco, Calif., one of the few remaining older California collectors.

10. Vanessa virginiensis Dru. (half-fig. 10a), ab. & massachusettensis nov. aberr. (fig. 10).

Upper side. Primaries: Ground color, a deeper brown; all black markings more dense; apical area solid black with all the usual white marks absent; lines along outer margin disappear in a solid black border. Secondaries: As in primaries, the ground color is deeper and the black markings more dense, especially noticeable at outer angle.

Under side. Primaries: Apical area brown-black with no white markings; red area very bright in contrast to the brown-black. Secondaries: Usual clear white designs very faint in

a lighter shade of brown.

Head, legs and body parts dark brown, instead of partly white. Expanse: 46 mm.

Data: Holotype &, (Author's Coll.), Southampton, Massachusetts, July 20, 1923.

Credit for the capture of this specimen goes to Mr. A. R. Lewis, Jr., Southampton, Massachusetts.

Note: Ab. fulvia Dodge, erroneously described as perhaps the early spring form of that locality, is simply a less darkly marked specimen, smaller and paler. Ab. ahwashee Fox, proves relationship with Van. carye muelleri and Van. cardui elymi. Mr. H. S. Sims, in the Entom. News, XXV, p. 33, 1914, notes a female aberration which seems melanic like massachusettensis. The absence of white spots makes massachusettensis a noteworthy addition to this species.

11. Junonia coenia Hbn. (half-fig. 11a), ab. ? schraderi nov. aberr. (fig. 11).

Upper side. Primaries: Entire wing clouded over with the ground color, completely obliterating lines at outer margin; ocelli areas blurred leaving no trace of design or blue center color as is found in the darkest form nigrosuffusa; no white band around ocelli extending to outer margin, but a semblance of lighter shading from ocelli to sex mark; no black borders around the red cell spots as is noticeable in form nigrosuffusa and typical coenia; basal and cell areas with a darker ground color; in form nigrosuffusa there is no blurring of the ocelli on the primaries, they are submerged in appearance, yet distinct in design. Secondaries: Single dark line at base of fringes on outer margin; followed by a narrow, lighter border or series of lunate interspace areas to position of original submarginal lines which are absent, a slightly darker ground color taking their place; both ocelli less sharply defined with no blue color, yet rimming of black in heavy contrast.

Under side. Primaries: No lines at outer margin; apical area clear slate-brown color; ocelli fused and blurred out of recognition; maculation of cell and near cell areas indistinct.

Secondaries: All lines indistinct.

This aberration compares favorably with certain illustrations of *Van io* ab. *belisaria* Obthr. by Dr. M. Standfuss. Expanse: 50 mm.

Data: Holotype ♀, (Author's Coll), Los Angeles, California, May 17, 1910.

Named for Mr. Wm. Schrader, Los Angeles, California.

Note: Mr. Schrader has experimented for many years with breeding J. coenia. Distortion or lack of ocelli has been the principal results of inbreeding under hot or cold, dry and moist air. He has published several papers. This last year the Author went over some seven thousand coenia bred for commercial purposes and found no real aberrations in the lot, aside from joined ocelli, distortions and the like, which goes to show that aberrations in this species are rarely occurring indeed. This specimen is the only aberration which Mr. Schrader produced in years and years of experiment. His object in experimenting with coenia was to show cause and effect. The species is easily raised.

12. Papilio eurymedon Bdv., form albanus Feld., ab. & cocklei nov. aberr. (fig. 12).

Upper side. Primaries: Wholly jet black with veins shiny black. Secondaries: Jet black as in primaries, except for row of blue spots, much reduced thru limbal area, only the lower ones showing; the long hairs parallel with inner margin are grey color and contrast with the jet black ground color.

Under side. All maculations of typical specimens are in evidence, the lighter portions being a smoky reddish grey; orange lumles at anal angle wholly obscured; row of blue spots

reduced in size and narrow. Expanse: 93 mm.

Data: Holotype &, (Author's Coll.) Kaslo, British Columbia, Canada, May 24, 1924.

Named for Mr. J. Wm. Cockle, Kaslo, B. C., Canada.

Note: Southern California Pap. enrymedon have creamwhite or yellow markings. Those of Northern California, north to Canada and thru the Rockies generally have pure white maculation. These latter, I should judge to be the form albamus. They are smaller specimens. I have some in which the black submarginal band extends inward covering nearly one-half the wing, and all white maculation is much reduced.

EXPLANATION OF PLATE V.

The numbers of the figures on this plate correspond to the numbers placed in front of the species in the text.

Undescribed Species of Crane-Flies from the Eastern United States and Canada (Dipt.: Tipulidae). Part I.

By Charles P. Alexander, Amherst, Massachusetts.*

The new species of crane-flies described at this time were chiefly included in extensive collections that were sent to me by Professor J. Speed Rogers, head of the Department of Biology, University of Florida at Gainesville, Florida. The flies are described at this time in order to make the names available for the forthcoming state lists by Professor Rogers. I am very greatly indebted to the collector for many favors

^{*}Contribution from the Department of Entomology, Massachusetts Agricultural College.